



Atena  
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Integrated Practices of Teaching,  
Research and University Extension

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# Professional voice: integrated practices of teaching, research and university extension

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## PREFACE

Maria Fabiana Bonfim de Lima-Silva

This e-book is a collection of experiences from my insertion, in 2011, as a professor in the Department of Speech Therapy at the Federal University of Paraíba (UFPB). Upon joining this institution, I developed an extension project called the Voice Advisory Program for Teachers (ASSEVOX), based on the knowledge I gained during the period in which I took my master's and doctorate, at the Pontifical Catholic University of São Paulo (PUC-SP), under the guidance of the Professor Dr. Leslie Piccolotto Ferreira and Prof. Dr. Zuleica Camargo.

So, in the following year, with the desire that extension students could experience the reality of professors through practical experiences that went beyond the walls of the university, I submitted ASSEVOX to the UFPB 2012 Probex Notice, but unfortunately we did not receive the scholarship. Even so, with a pioneering group of six students, we started our actions through a Fluex project (Project only with volunteer students) in a private school with the objective of promoting vocal health for teachers and the school community. I remember that we went through several challenges, because the room that the school gave us for collection was not a clean, pleasant environment, however, we did not get discouraged and cleaned, painted the walls and renovated the entire room. Shortly after the renovation, we started our vocal health assessments and workshops. I remember to this day that many teachers were surprised by our act of cleaning the room, as no one had ever done anything to improve that room, and they said: "*It was an abandoned room*"; "...it was a real storage room for the school, now there is another room, well *organized and clean*".

It is worth noting that in the first meeting with the director of this school, it was emphasized that we would carry out vocal assessments of the teachers, but that after these procedures, the teachers participating in the project would receive the reports with the diagnosis and then participate in voice experience workshops with content theoretical and practical, within the school. In addition, our team inserted vocal health actions in the school calendar events (student day, teacher's day, family day, among others).

Then, in 2013, we took an important step towards ASSEVOX, we managed to get the project approved with a grant in the Probex 2013 Notice, and we entered into a partnership with the Department of Education and Culture of João Pessoa (SEDEC-JP). Thus, between 2012 and 2019, with the support of the Edital Probex and Fluex (UFPB), more than 60 extension workers participated in our project, from undergraduate, graduate and other courses (Psychology, Physiotherapy, among others). Currently, ASSEVOX has managed to cover 15 schools in the public and private network, including kindergarten, elementary and

high school. In addition, during these seven years, in person, we carried out an average of 420 vocal screenings, 44 voice experience workshops and 21 lectures. In the last lecture, held in 2019, we were invited by SEDEC-JP to talk about the importance of voice in teaching work and handling voice amplifiers, in which my doctoral student Patrícia Penha and I presented relevant data from the research developed by ASSEVOX and strategies correct handling of microphones (voice amplifiers). It is worth noting that more than 500 amplifiers were delivered to the teachers participating in this event.

Such actions carried out during this period, yielded us several products, including participation in local, regional and national events (congresses, seminars, meetings), 10 publications of scientific articles in national and international journals, 14 book chapters, 73 complete, expanded abstracts and annals, 21 course conclusion works, 31 scientific initiation works, 5 dissertations, among others.

However, in the first months of 2020, we were surprised by the onset of the SARS-CoV-2 pandemic, a rapidly spreading respiratory syndrome. Since then, several measures by the World Health Organization (WHO) have been taken to prevent the spread of this virus, including social distancing. This fact brought as the main impact to the ASSEVOX project the impossibility of carrying out the actions (workshops, screening and attendance) in person. As a result of these various changes, the project had to reinvent itself and adapt to the new reality, using digital platforms to continue developing its activities and contributing, more than ever, to society and the academic community. In addition, the project, which was previously aimed only at teachers, expanded its target audience to all voice professionals (teachers, telemarketers, digital influencers, actors, singers, telejournalists and others) and thus came to be called Vocal Advisory Program for Voice Professionals (ASSEVOX).

According to this new appearance, ASSEVOX showed itself to have solid foundations and an excellent potential to adapt to new situations. In this period, we idealized to make our *Instagram* profile a digital magazine, containing information accessible to voice professionals and the entire community. Through meetings, we create content, develop means of interaction and broaden our view of the most diverse forms of health promotion. With this, we continue with our scientific initiation projects, discuss book chapters, participate in open classes and regional events, publish scientific articles and, above all, drive our dreams!

Currently, we had the project "Analysis of the effects of a distance vocal health program for teachers in the state of Paraíba" approved in the Universal Demand Notice n° 09/2021, promoted by the Foundation for Research Support of the State of Paraíba (FAPESQ), which brings unprecedented insofar as there are no other proposals in force in the state with the purpose of assisting and supporting the essential professional for the development of our society, such as the teacher. issues related to the health and quality of life of several educators in the state, especially those who do not have the financial possibilities or conditions to be accompanied by a professional speech therapist.

This *e-book* is part of a beautiful journey full of challenges. A path traveled with dedication, responsibility and union. Therefore, we invite you, the reader, to know a little more about the work performed by the ASSEVOX group over these 10 years.

I wish you a good read and that this work is an inspiration for all those who wish to tread the paths of university extension, teaching and research.

## PRESENTATION

This *e-book* entitled “**Professional Voice: Integrated Teaching, Research and University Extension Practices**” is the result of an extension project called “Vocal Advisory Program for Voice Professionals” (ASSEVOX), which has been developed since the year of 2012 with the support of the public notice for the Extension Scholarship Program (PROBEX) of the Federal University of Paraíba (UFPB), whose main objective is to promote vocal health and prevent voice disorders in the most diverse professionals who depend on it to perform their work.

In this work, 14 chapters were gathered that explain from the experience of students and teachers who participated in the voice advisory program, to themes related to the prevention of voice disorders, vocal health promotion and around expressiveness. In them, there are studies about teachers, telemarketers, telejournalists and digital influencers. The purpose of this e-book is to expand the knowledge of undergraduate, graduate and Speech-Language Pathology professionals, as well as all those interested in studying voice professionals. In addition, we hope to encourage and drive the development of research through the vision and experiences of a university extension.

It is important to highlight that this work is composed of results of scientific initiation research and experiences around the ASSEVOX university extension. The chapters were prepared by students (undergraduate and graduate students) and by professional researchers from UFPB and other institutions (UNIPÊe PUC-SP) who, in a responsible and qualified way, proposed to explain their studies with current and relevant themes for the scientific community and society as a whole.

We wish you a great read!

Maria Fabiana Bonfim de Lima-Silva  
Aline Menezes Guedes Dias de Araújo  
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## RELATIONSHIP BETWEEN VOCAL USE AND SELF-REPORTED BODILY PAIN BY TEACHERS

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**ABSTRACT:** The teacher is the most investigated voice professional in speech therapy and in the area of voice, as he belongs to the group with the greatest risk for the development of vocal disorders. **Objective:** To verify the symptoms of vocal disorders and body aches self-reported by teachers from the municipal network of João Pessoa. **Methods:** This is an observational, descriptive, cross-sectional and quantitative study, approved by the Ethics Committee for Research with Human Beings of the institution of origin, under CAAE: 10719513.5.0000.5188. Twenty-one elementary school teachers of both sexes participated in the research. The teachers answered the Vocal Production Condition - Teacher, Voice Disorder Screening Index

questionnaires and the Body Pain and Vocal Condition in Professional Practice questionnaire. All data were analyzed descriptively. **Results:** The most reported vocal symptoms were: dry throat, dry cough, hoarseness, voice failure and tiredness when speaking. The most frequent bodily pains were headache, neck pain and throat pain. **Conclusion:** There was a high number of teachers with vocal symptoms and complaints of bodily pain. This finding may be related to their work activity.

**KEYWORDS:** Voice, Faculty, Voice disorders, Working conditions.

## 1 | INTRODUCTION

The voice is one of the aspects that reflect the personal characteristics of an individual, and considered as an important element to develop communication (LEMOS; MARCHAND; CASSOL, 2015). Individuals who use it as a work tool are called voice professionals, such as singers, actors, radio announcers, teleoperators and teachers, the latter belonging to the group with higher risk for the development of voice disorders (ROY et al., 2004; RODRIGUES; BEHLAU, 2011; LIMA-SILVA et al., 2012).

The Ministry of Health classifies the Work-Related Voice Disorder (WRVD) as “any form of vocal deviation related to professional activity that diminishes, compromises or impedes the worker’s performance or communication, and

there may or may not be organic alteration of the larynx” (MINISTRY OF HEALTH, 2018). And thinking about teachers as voice professionals, they are susceptible to such disorders, which bring with them not only purely vocal issues, but limitations in vocal expression, emotional impact, caused by stress and anxiety, and socioeconomic impact, which puts at risk the career and survival of the worker (LIMA-SILVA et al., 2012; MINISTRY OF HEALTH, 2018).

Among the habits most performed among teachers during their professional activity, it stands out teaching standing or sitting uncomfortably, moving when using the blackboard to write, besides the frequent standing position inside the room, and it is known that all this if performed with improper postures, can harm the musculoskeletal structure, collaborating with the emergence of symptoms in some body regions, emerging then the presence of pain, which is a symptom often reported by voice professionals. Such symptoms can have a negative impact on the development of their work, limit their professional activity and interfere with their quality of life, as well as their well-being and health (CONSTANCIO et al., 2012).

Still in relation to the muscular effort performed by teachers, the Ministry of Health (2012) when treating Work-Related Musculoskeletal Disorders (WMSD), states that work performed in a fixed position or with repetitive movements, especially of the upper limbs, lack of post-contraction recovery and fatigue (lack of time flexibility, high pace of work) are the main inducers of neuromuscular fatigue. Musculoskeletal pain is a known consequence of repetitive strain, overuse and work-related musculoskeletal disorders, and is considered one of the biggest health problems in the modern world (CONSTANCIO et al., 2012).

According to Silverio et al. (2014), some types of functional and organofunctional dysphonias may be associated with muscular alterations that cause body discomfort, especially pain in the cervical region. In view of this, turning attention to the teacher’s vocal health is of utmost importance.

According to the above, identifying possible body pain and self-reported vocal symptoms of teachers will allow us to understand the relationship between them, so that we can obtain a multidimensional diagnosis of vocal quality more accurately and earlier. Thus, the aim of this research was to verify the symptoms of vocal disorders and the body pains self-reported by teachers from the municipal network of João Pessoa.

## 2 | MÉTHODS

This is an observational, descriptive, cross-sectional, quantitative study. It was approved by the Ethics Committee for Research with Human Beings of the institution of origin on May 27, 2021, under process number 091/13 (CAAE: 10719513.5.0000.5188).

All teachers involved in the research signed the Informed Consent Form (TCLE), thus allowing the realization and dissemination of this research and its results, according to Resolution MS/CNS/CNEP No. 466/12 of December 12, 2012.

The sample was selected by convenience and composed of 21 elementary school teachers belonging to the public network of João Pessoa- PB, which were submitted to the completion of the protocol Vocal Production Condition - Teacher (CPV-P), the questionnaire Screening Index of Voice Disorder (IDTV) and the questionnaire Body Pain and Vocal Condition in Professional Practice.

The protocol Vocal Production Condition - Teacher (CPV-P) was created by Ferreira et al. (2007), and aims at characterizing the vocal profile and the general health of teachers, as well as investigating the working conditions in schools, from the teachers' point of view. This instrument includes the dimensions: subject identification, functional situation, work environment, work organization, vocal aspects, habits and lifestyle. However, for this study, the data on the identification and functional situation of the teachers were investigated.

The Voice Disorder Screening Index (VDI) questionnaire was developed by Ghirardi et al. (2013) and its use must assist in mapping teacher voice disorder. The instrument is validated and features 12 vocal symptoms. The participant must mark how often he or she presents such symptoms: "never," "rarely," "sometimes," or "always." Each score in the "sometimes" or "always" categories represents one point. The total score of the ITDV is calculated by simply adding up the points obtained. Values equal to or higher than five suggest the presence of a voice disorder, and the teacher must be referred to a specialized service.

The questionnaire Body Pain and Vocal Condition in Professional Practice was developed by Constancio et al. (2012), has 14 questions related to the presence and intensity of body pains, the length of time working as a teacher, consultations with an otorhinolaryngologist or speech therapist due to vocal problems, and how they rate their own voice.

The data obtained were tabulated in Microsoft Office Excel (2016 version) and descriptive analysis of the data was performed.

### **3 | RESULTS AND DISCUSSION**

The teacher belongs to the category of communication professionals who use the voice as a working tool. However, they are subject to develop or worsen a vocal disorder due to multifactors present in the work context, for example, the presence of body pains (MINISTRY OF HEALTH, 2018). In this sense, the objective of this research was to verify the symptoms of vocal disorders and body pains self-reported by teachers of the municipal network of João Pessoa.

Twenty-one teachers participated in this study being mostly female (80.95%; n=17), a finding similar to other studies with elementary school teachers (LIMA-SILVA et al., 2012; MENDES et al., 2016; PENHA et al., 2019). According to the Ministry of Education (2018), through the School Census, the high number of women in education may be related to the cultural and historical issue, in which teaching has become a career practiced by a significant number of women.

The mean age found was 41.47 years (SD=9.13) and, according to the literature (BEHLAU, 2001), the age range between 25 and 45 years is considered the period of greater vocal efficiency. However, with advancing age, structural changes in the larynx can occur, with greater or lesser vocal impact (FERREIRA et al., 2008; MORAIS et al., 2012). The teachers in this study were near the end of the vocal efficiency period, which may justify in part, the high self-reported vocal complaints identified.

Regarding the workload, it was found a predominance between 10 to 20 hours (38.10%; n=8), a number found in other similar studies that relate voice and teaching activity (MENDES et al., 2016; LIMA-SILVA; ANJOS; MOREIRA, 2017). The document released by the Ministry of Health, Work-Related Voice Disorders (WRD), describes that excessive workload is one of the main factors associated with voice disorder in teachers (MINISTRY OF HEALTH, 2018). Thus, the workload is a risk factor for vocal disorders in teachers.

From the analysis of the questionnaire Vocal Condition and Body Pain During Professional Exercise (Table 1), it is possible to observe that in the sample studied, 80.95% (n=17) have already experienced vocal problems during professional exercise and 42.86% (n=9) have already needed to take time off work due to voice problems. The presence of voice disorder in teachers can cause several impacts both professionally and personally. In addition, it will imply financially by the need for replacement of the teacher in schools, as well as the high cost of treatment services (MINISTRY OF HEALTH, 2018).

It was observed that only 19.05% (n=4) of teachers have consulted an otorhinolaryngologist and none of them have sought a speech therapist. This fact reveals the need for the insertion of the speech therapist in the school environment and also shows the lack of knowledge on the part of teachers about this professional and how much it can help them in voice care.

Regarding the classification of their voice, 42.85% (n=9) referred it as good and 33.33% (n=7) as reasonable (Table 1). Even though most teachers have classified their voice as good, the presence of the speech therapist in schools becomes indispensable because it will promote actions of promotion, prevention and monitoring of vocal health, as well as work the self-perception of the voice so that they can better identify the existence of vocal disorders (ALMEIDA et al., 2012; PENHA et al., 2021).

<b>Questions from the questionnaire Vocal Condition and Body Pain during Professional Exercise</b>	<b>n</b>	<b>%</b>
<b>Have you ever experienced vocal problems during your professional practice?</b>		
Yes	17	80,95
No	4	19,05
<b>Have you ever had to take time off from your work due to voice problems?</b>		
Yes	9	42,86
No	12	57,14
<b>Have you ever seen an otorhinolaryngologist due to voice problems?</b>		
Yes	4	19,05
No	17	80,95
<b>Have you ever consulted a speech therapist because of voice problems?</b>		
No	21	100
<b>How would you rate your voice?</b>		
Great	1	4,76
Good	9	42,85
Fair	7	33,33
Bad	3	14,28
Very bad	1	4,76

Table 1 - Questions from the questionnaire Vocal Condition and Body Pain During Professional Exercise. João Pessoa, 2019.

Source: survey data, 2019.

Regarding the frequency of complaints of body pain symptoms, it was possible to identify: sore throat 61.90% (n=13), neck pain 57.10% (n=12) and headache 52.30% (n=11), with most of these symptoms referred by teachers as “sometimes” (Table 2). A study conducted with 12 public school teachers identified that the biggest complaints of body aches were in the spine and throat, being these findings similar to the present research (ALMEIDA et al., 2012). Such information points to the need for comprehensive, intersectoral and interdisciplinary actions, in order to prevent, detect early and intervene in speech and hearing disorders, as well as physiotherapy characteristic of the teaching profession.

Localization of body pain	Never		Sometimes		Many Times		Almost always		Always	
	n	%	n	%	n	%	N	%	n	%
Headaches	7	33,30	11	52,30	2	9,50	1	4,70	0	0,00
TMJ/jaw pain	14	66,60	7	33,30	0	0,00	0	0,00	0	0,00
Tongue pain	19	90,40	1	4,70	1	4,70	0	0,00	0	0,00
Sore throat	3	14,20	13	61,90	3	14,20	1	4,70	1	4,70
Back of the neck pain	9	42,80	9	42,80	2	9,50	1	4,70	0	0,00
Muster pain	6	28,50	9	42,80	2	9,50	4	19,00	0	0,00
Back/spinal pain	2	9,50	8	38,00	6	28,50	2	9,50	3	14,20
Pain in the neck	4	19,00	12	57,10	3	14,20	1	4,70	1	4,70
Chest pain	12	57,10	5	23,80	2	9,50	2	9,50	0	0,00
Pain in the arms	8	38,00	9	42,80	2	9,50	2	9,50	0	0,00
Pain in the hands	11	52,30	7	33,30	2	9,50	1	4,70	0	0,00
Ear pain	13	61,90	6	28,50	1	4,70	1	4,70	0	0,00
Pain when speaking	10	47,60	7	33,30	2	9,50	2	9,50	0	0,00

Table 2 – Frequency of teachers' self-reported bodily pain. João Pessoa, 2019.

Source: survey data, 2019.

Regarding the instrument ITDV, the mean of teachers was 5.47 symptoms and the most frequent were: dry throat (66.67%; n=14), dry cough (61.90%; n=13), hoarseness, voice failure and tiredness when speaking with 57.14% (n=12) (Table 3). Such symptoms found are the most common in teachers with voice disorder as reported in other studies (LIMA-SILVA et al., 2012; LIMA-SILVA; ANJOS; MOREIRA, 2017; PENHA et al., 2021).

A study developed by Paiva, Ferreira and Lima-Silva (2016), aimed to describe the vocal profile, vocal symptoms and their possible causes in 151 public school teachers in the municipality of João Pessoa - PB. When checking the presence of vocal symptoms of dry throat, hawking and fatigue when speaking, teachers pointed out as possible causes the intensive use of voice, stress and the presence of allergies. Therefore, the teachers in this study may also be exposed to risk factors of environmental, organizational and individual origin, which negatively affect the health and quality of life of this professional.

Vocal symptoms	n(%)
Hoarseness	12 (57,14%)
Loss of voice	5 (23,81%)
Voice cracking	12 (57,14%)
Thick voice	8 (38,10%)
Coughing	10 (47,62%)
Dry cough	13 (61,90%)
Coughing with secretion	6 (28,70%)
Pain when speaking	8 (38,10%)
Pain when swallowing	7 (33,33%)
Throat secretion	8 (38,10%)
Dry throat	14 (66,67%)
Tiredness when speaking	12 (57,12%)

Table 3 - Frequency and percentage of the presence of vocal symptoms self-reported by teachers. João Pessoa, 2019.

Source: survey data, 2019.

The data from the present research revealed a high incidence of vocal symptoms and body pain in the teachers studied. Such findings, reinforce the need for changes in working conditions within schools, as well as actions that not only aim at improvements in vocal health care for teachers, but also in physical and psychological conditions, providing health and general well-being to the worker.

## 4 | CONCLUSION

It was found a high number of teachers with vocal symptoms, mainly, dry throat, dry cough, hoarseness, voice failure and tiredness when speaking. In addition, it was observed that teachers complained of body aches and pains in the throat, neck and head, probably as a result of their work activity.

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